

REMARKS

Claims 1-41 are all the claims pending in the application. By this amendment, new claims 39-41 are added.

Claims 1-5, 7-13 and 15-38 are all the claims pending in the application. Claims 5, 7, 8, 13, 15-25, 29-33 and 35-38 are rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,714,764 (hereinafter, "Takeo"). Claims 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,714,764(hereinafter, "Takeo"). Applicant submits the following in traversal.

Rejection of Claims 5, 7, 8, 13, 15-25, 29-33 and 35-38 under §102(b) by Takeo

Applicant respectfully submits that claim 5 is patentable because Takeo fails to disclose or suggest each and every element of claim 5. Claim 5 recites, inter alia, a method comprising:

changing the detection level according to photographing conditions under which the image of the object is taken,

wherein the photographing condition is at least one of the tube voltage or the tube current of the radiation source, the irradiating time, the product of the tube current and the irradiating time, the degree of compression of the object when the object is photographed under pressure, whether a grid is used, the kind of the grid used, and the magnifying power.

For example, Takeo fails to disclose changing the detection level according to photographing conditions under which the image of the object is taken, in combination with other elements of the claim.

In the Office Action, the Examiner cites col. 10, lines 35-46 and col. 13, lines 25-56 as corresponding to the aforementioned feature of claim 5. Although Takeo does disclose that when “the dose of x-rays irradiated to the IP is high and the image signal range is narrow, the EDR adjusts the read-out conditions,” the read-out conditions are not changed according to the photographic conditions under which an image of an object is taken.

Specifically, Takeo discloses that “the read-out conditions are defined by two parameters, i.e., the read-out sensitivity (S value) and the latitude (L value). See, col. 10, lines 47-58. The S and the L values are clearly disclosed in Takeo as relating to the amount of light emitted by the image panel (IP). See, col. 10, line 59 - col. 11, line 15. In other words, Takeo discloses setting the read-out conditions directly based on light emitted by an image panel on which an image has already been recorded. Takeo, however, does not disclose or suggest adjusting the read-out conditions directly based on the dose of X-rays irradiated to the image panel.

To further explain the differences between the invention as recited in claim 1 and Takao, Applicant points out the following differences between the predetermined detecting level for detecting an abnormal shadow and the readout conditions for producing a radiographic image from a latent image formed on an IP (imaging plate), in Takao.

In Takao, a radiographic image is produced from a latent image formed on an IP by setting readout conditions based on the state of the latent image. In Takao, the detection level for detecting an abnormal shadow in the radiographic image is not determined based on the irradiation dose. In Takao, the detection level is set or changed based on the variation amount of image data (how sharply the density locally changes from white to black) in the vicinity of an abnormal shadow detected in the radiographic image. In Takao, the image data that is used for

setting the detection level is normalized data obtained by setting appropriate readout conditions during readout, and the image data is not affected by the irradiation dose. Hence, in Takao, the detection level, which is set based on the image data, is not affected by the irradiation dose (photographing conditions).

In contrast, in the present invention, "the detecting level of an abnormal shadow" is determined based on "the photographing conditions". As described above, Takao fails to teach or suggest such features.

Further, according to the specification of Takao, the advantageous effects of the invention of Takao are that detection for each region of a subject can be appropriately performed by changing the detection level based on the variation amount of image data (local image data) representing a part of a normalized image. However, in actual operations, it is difficult to obtain completely normalized image data because the states (appearance, the contrast of the entire image, the contrast of each structure in the image, or the like) of radiographic images vary according to the photography conditions. If the states of the radiographic images vary, the states of abnormal shadows included in the radiographic images also vary. In the present invention, such problems in Takao can be overcome by setting the "detecting level" based on the "photographing conditions", which is one of factors affecting the states of the radiographic image and the abnormal shadow. Hence, in the present invention, an abnormal shadow can be detected at an appropriate detecting level for each of radiographic images, the states of which are different from each other.

For at least the above reasons, claim 5 is patentable.

For reasons similar to those submitted for claim 5, claims 13 and 17 are patentable.

Claims 7, 8, 31 and 36 which depend from claim 5, claims 15, 16, 29, 30, 32 and 37 which depend upon claim 13, and claims 18-25, 33, 35 and 38 which depend from claim 17, are patentable for at least the reasons submitted for the respective base claims.


Rejection of Claim 34 under §103(a) over Takeo

In the Office Action, the Examiner rejects claim 34 by taking official notice that a degree of compression of an object as a photographing condition is well known in the art. Applicant respectfully requests the Examiner to provide prior art which supports this official notice and also provides the necessary motivation to modify the teachings of Takeo to render claim 34 obvious.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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